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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Roman J. Giger

Art Unit : Unknown

Serial No.: 10/551,833

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Title

: IDENTIFICATION OF NOGO-RECEPTORS AND METHODS RELATED

THERETO

MAIL STOP AMENDMENT

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Applicants request consideration of the references listed on the attached PTO-1449 form. Under 37 C.F.R. § 1.98 (a)(2)(ii), only copies of foreign patent documents and/or non-patent literature are enclosed. Copies of any listed U.S. patents or U.S. patent application publications can be provided upon request.

This statement is being filed within three months of the filing date of the application or before the receipt of a first Office Action on the merits. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 10/20/06

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Information

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U.S. Department of Commerce Patent and Trademark Office Attorney's Docket No. 20724-011US1

Application No.

Information Disclosure Statement by Applicant (Use several sheets if necessary)

Applicant Roman J. Giger

Filing Date

Group Art Unit

(37 CFR §1.98(b))

| | U.S. Patent Documents | | | | | | |
|---------------------|-----------------------|--------------------|---------------------|----------------|-------|----------|----------------------------|
| Examiner Initial | Desig. ID | Document Number | Publication Date | Patentee | Class | Subclass | Filing Date If Appropriate |
| | AA | 20020077295 | 06-20-2002 | Strittmatter | | | |
| | AB | 20020012965 | 01-31-2002 | Strittmatter | | | |
| • | AC | 20030113325 | 06-19-2003 | He, et al. | | | |
| | AD | 20040029169 | 02-12-2004 | He, et al. | | | |
| | AE | 20040259092 | 12-23-2004 | Barske, et al. | | | |
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| | Foreign Patent Documents or Published Foreign Patent Applications | | | | | | | |
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| Examiner | Desig. | Document | Publication | Country or | | | Trans | lation |
| Initial | ID | Number | Date | Patent Office | Class | Subclass | Yes | No |
| | AF . | WO 03/018631 | 03-06-2003 | PCT | | | | |
| | AG | WO 03/035687 | 05-01-2003 | PCT | | | | |
| | AH | | | | | | | |
| | AI | | | | | | | |
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| | Other Documents (include Author, Title, Date, and Place of Publication) | | | |
|----------|---|---|--|--|
| Examiner | Desig. | | | |
| Initial | ID D | Document | | |
| | AK | Adams et al., "A role for syndecan-1 in coupling fascin spike formation by thrombospondin-1" <i>J. Cell Biol.</i> , 2001. 152(6):1169-82. | | |
| | AL | Bandtlow and Zirnnlermann, "Proteoglycans in the developing brain: new conceptual insights for old proteins." <i>Physiol. Rev.</i> , 2000. 80(4): 1267-90. | | |
| | AM | Barnett et al., "Signaling by glial cell line-derived neurotrophic factor (gdnf) requires heparan sulphate glycosaminoglycan." <i>J Cell Sci</i> , 2002. 11 5(23):4495-503. | | |
| | AN | Barton et al., "Structure and axon outgrowth inhibitor binding of the Nogo-66 receptor and related proteins." <i>EMBO J</i> 2003. 22(13):3291 -302. | | |

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| Substitute Form PTO-1449 U.S. Department of Commerce Patent and Trademark Office | | Attorney's Docket No. 20724-011US1 | Application No. | |
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| Examiner | Desig. | ocuments (include Author, Title, Date, and Place of Publication) |
|----------|--------|---|
| Initial | Desig. | Document |
| | AO | Berndt et al., "Cloning and characterization of human sytidcenn-3." <i>J Cell Biochem.</i> , 2001. 82(2):246-59. |
| | AP | Bowers et al., "Expression of vhs and VP16 during HSV-1 helper virus-free amplicon packaging enhances titers" <i>Gene Ther.</i> , 2001. 8(2):111-20. |
| | AQ | Bregman et al., "Recovery from spinal cord injury mediated by antibodies to neurite growth inhibitors." <i>Nature</i> , 1995. 378(6556):498-501. |
| | AR | Brosamle et al., "Regeneration of lesioned corticospinal tract fibers in the adult rat induced by a recombinant, humanized IN-1 antibody fragment." J. Neurosci., 2000. 20(21):8061-8. |
| | AS | Carey, "Syndecans: Multifunctional cell-surface co-receptors." J. Biochem., 1997. 327(1):1-16. |
| | AT | Caroni and Schwab, "Antibody against myelin-associated inhibitor of neurite growth neutralizes non-permissive substrate properties of cns white matter." <i>Neuron</i> , 1988. 1(1):85-96. |
| | AU | Chen et al., "Nogo-a is a myelin-associated neurite outgrowth inhibitor and an antigen for monoclonal antibody IN-1." <i>Nature</i> , 2000. 403(6768):434-9. |
| | AV | Collins et al., "Sialic acid specificity of myelin-associated glycoprotein binding." J. Biol. Chem., 1997. 272(2):1248-55. |
| | AW | DeBellard et al., "Myelin-associated glycoprotein inhibits axonal regeneration from a variety of neurons via interaction with a sialoglycoprotein." <i>Molecular and Cellular Neuroscience</i> , 1996. 7:89 101. |
| | AX | Domeniconi et al., "Myelin-associated glycoprotein interacts with the nogo66 receptor to inhibit neurite outgrowth." <i>Neuron</i> , 2002. 35(2):283-90. |
| | · AY | Ethell et al., "Ephb/syndecan-2 signaling in dendritic spine morphogenesis. <i>Neuron</i> , 2001. 31(6):1001-13. |
| • | AZ | Fournier et al., "Truncated soluble nogo receptor binds nogo-66 and blocks inhibition of axon growth by myelin." J. Neurosci., 2002. 22(20):8876-83. |
| | AAA | Fournier et al., "Identification of a receptor mediating nogo-66 inhibition of axonal regeneration." <i>Nature</i> , 2001. 409(6818):341-6. |
| | ABB | Fournier and Strittmatter, "Repulsive factors and axon regeneration in the cns." Curr. Opin. Neurobiol., 2001. 11(1):89-94. |
| | ACC | Giger et al., "Anatomy of rat semaphorin iii/collapsin-1 mrna expression and relationship to developing nerve tracts during neuroembryogenesis." <i>J Comp Neurol</i> , 1996.375(3):318-92. |
| | ADD | Giger et al., "Adenovirus-mediated gene transfer in neurons: construction and characterization of a vector for heterologous expression of the axonal cell adhesion molecule axonin-1." <i>J. Neurosci. Methods</i> , 1997 1: 99-111. |
| | AEE | Giger et al., "Anatomical distribution of the chemorepellent semaphorin iii/collapsin- l in the adult rat and human brain: Predominant expression in the olfactory-hippocampal pathway and the motor system." J. Neurosci. Res., 1998. 1:27-42. |
| | AFF | Giger et al., "Neuropilin-2 is a receptor for semaphorin iv: Insight into the structural basis of receptor function and specificity." <i>Neuron</i> , 1998. 21:1074-1092. |
| | AGG | Giger et al., "Neuropilin-2 is required in vivo for selective axon guidance responses to secreted semaphorins." <i>Neuron</i> , 2000. 25(l):29-41. |
| | АНН | GrandPre et al., "Nogo-66 receptor antagonist peptide promotes axonal regeneration." <i>Nature</i> , 2002 417(6888):547-51. |

| Examiner Signature | Date Considered |
|---|---|
| EXAMINER: Initials citation considered. Draw line through citation if no next communication to applicant. | t in conformance and not considered. Include copy of this form with |

| Substitute Form PTO-1449 U.S. Department of Commerce (Modified) Patent and Trademark Office | | Attomey's Docket No. 20724-011US1 | Application No. | |
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| (Use several sheets if necessary) | | Filing Date | Group Art Unit | |
| (37 CFR §1.98(b)) | | | | |

| Other Documents (include Author, Title, Date, and Place of Publication) | | | |
|---|--------|--|--|
| Examiner Initial | Desig. | Document | |
| | AII | GrandPre et al., "Identification of the nogo inhibitor of axon regeneration as a reticulon protein." <i>Nature</i> , 2000. 403(6768):439-44. | |
| | AJJ | Granes et al., "Ezrin links syndecan-2 to the cytoskeleton." J. Cell Sci. 2000. 113(Pt 7): 1267-76. | |
| | AKK | Hartmann and Maurer, "Proteoglycans in the nervous systemthe quest for functional roles in vivo." <i>Matrix Biol.</i> , 2001. 20(1):23-35. | |
| | ALL | Heinegard and Sommarin, "Proteoglycans: an overview." Methods Enzmol., 1987. 144:305-19. | |
| | AMM | Hileman et al., "Glycosaminoglycan-protein interactions: Definition of consensus sites in glycosaminoglycan binding proteins." <i>Bioessays</i> , 1998. 20(2):156-67. | |
| | ANN | Hsueh and Sheng, "Regulated expression and subcellular localization of syndecan heparan sulfate proteoglycans and the syndecan-binding protein CASWLIN-2 during rat brain development." <i>J Neurosci.</i> , 1999. 19(17):7415-25. | |
| | A00 | Josephson et al., "Nogo-receptor gene activity: Cellular localization and developmental regulation of mRNA in mice and humans." <i>J Comp Neurol.</i> , 2002. 453:292-304. | |
| | APP | Kaksonen et al., "Syndecan-3-deficient mice exhibit enhanced ltp and impaired hippocampus-dependent memory." <i>Mol Cell Neurosci.</i> , 2002. 2l(1):158-72. | |
| | AQQ | Kawai et al., "Mice expressing only monosialoganglioside gm3 exhibit lethal audiogenic seizures." J. Biol. Chem, 2001. 276(10):6885-8. | |
| · | ARR | Kelm et al., "Sialoadhesin, myelin-associated glycoprotein and cd22 define a new family of sialic acid-dependent adhesion molecules of the immunoglobulin superfamily." <i>Current Biology</i> , 1994. 4(11):965-72. | |
| | ASS | Kinnunen et al., "Heparan sulphate and HB-GAM (heparin-binding growth-associated molecule) in the development of the thalamocortical pathway of rat brain." Eur J Neurosci., 1999. 11(2):491-502. | |
| | ATT | Kobe and Deisenhofer, "The leucine-rich repeat: a versatile binding motif." TIBS, 19:415-420. | |
| | AUU | Kobe and Kajava, "The leucine-rich repeat as a protein recognition motif." Curr. Opin. Struct. Biol., 2001. 11:725-32. | |
| | AVV | Kolodkin et al., "Neuropilin is a semaphorin iii receptor." Cell, 1997. 90(4):757-62. | |
| | AWW | Kolter et al., "Combinatorial ganglioside biosynthesis." J. Biol. Chem., 2002. 277(29): 25859-25862. | |
| | AXX | Kottis et al., "Oligodendrocyte-myelin glycoprotein (omgp) is an inhibitor of neurite outgrowth." <i>J Neurochem</i> , 2002. 82(6):1566-3. | |
| | AYY | Kunkel-Bagden et al., "Methods to assess the development and recovery of locomotor function after spinal cord injury in rats." <i>Exp Neurol</i> , 1993. 119(2):153-64. | |
| | AZZ | Li and Raisman, "Schwann cells induce sprouting in motor and sensory axons in the adult rat spinal cord." <i>Journal of Neuroscience</i> , 1994. 14(7):4050-63. | |
| | AAAA | Liu et al., "Myelin-associated glycoprotein as a functional ligand for the nogo-66 receptor." <i>Science</i> , 2002. 297(5584):1190-3. | |
| | ABBB | Liu et al., "A genetic model of substrate deprivation therapy for a glycosphingolipid storage disorder." J. Clin. Invest. 1999. 103(4): 497-505. | |
| | ACCC | Maasho et al., "Efficient gene transfer into the human natural killer cell line, NKL, using the Amaxa nucleofection system." J Immunol Methods, 2004. 284(1-2):133-40 | |

| Date Considered |
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| ot in conformance and not considered. Include copy of this form with |
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| Substitute Form PTO-1449 U.S. Department of Commerce (Modified) Patent and Trademark Office | | Attorney's Docket No. 20724-011US1 | Application No. |
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| (Use several sheets if necessary) | | Filing Date | Group Art Unit |
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| | Other D | ocuments (include Author, Title, Date, and Place of Publication) |
|------------------|--------------|---|
| Examiner Initial | Desig. ID | Document |
| | ADDD | Maguir-Zeis et al., "HSV vector-mediated gene delivery to the central nervous system." Curr. Opin. Mol. Ther., 2001. 3(5):482-90. |
| | AEEE | McKerracher et al., "Identification of myelin-associated glycoprotein as a major myelin-derived inhibitor of neurite growth." <i>Neuron</i> , 1994. 13(4):805-11. |
| | AFFF | McKerracher and Winton, "Nogo on the go." Neuron, 2002. 36(3):345-8 |
| ···· | AGGG | Mikol and Stefansson, "A phosphatidylinositol-linked peanut agglutinin-binding glycoprotein in central nervous system myelin and on oligodendrocytes." <i>J Cell Biol.</i> , 1988. 106(4):1273-9. |
| • | АННН | Mukhopadhyay et al., "A novel role for myelin-associated glycoprotein as an inhibitor of axonal regeneration." <i>Neuron</i> , 1994. 13(3):757-67. |
| | AIII | Niederost, et al., "Bovine CNS myelin contains neurite growth-inhibitory activity associated with chondroitin sulfate proteoglycans" <i>Journal of Neuroscience</i> , 1999. 19(20):8979-89. |
| | AJJJ | Niederost et al., "Nogo-a and myelin-associated glycoprotein mediate neurite growth inhibition by antagonistic regulation of rhoa and racl." <i>J Neurosci.</i> , 22(23):10368-76. |
| | AKKK | Pignot et al., "Characterization of two novel proteins, NgRH1 and NgRH2, structurally and biochemically homologous to the Nogo-66 receptor." <i>Journal of Neurochemistry</i> , 2003. 85:717-28. |
| | ALLL | Prinjha et al., "Inhibitor of neurite outgrowth in humans." Nature. 2000. 403(6768):383-4 |
| | AMMM | Qiu et al., "Glial inhibition of nerve regeneration in the mature mammalian CNS." Glia, 2000. 29:166-74 |
| | ANNN | Savio and Schwab, "Lesioned corticospinal tract axons regenerate in myelin-free rat spinal cord." <i>PNAS</i> , 1990. 87(11):4130-41. |
| | A000 | Savio and Schwab, "Rat cns white matter, but not gray matter, is non-permissive for neuronal cell adhesion and fiber outgrowth." <i>J Neurosci</i> , 1989. 9(4):1126-33. |
| | APPP | Schnaar, "Myelin molecules limiting nervous system plasticity." <i>Progress in Molecular and Subcellular Biology</i> , 2003. 32:125-42. |
| | AQQQ | Schnell and Schwab, "Axonal regeneration in the rat spinal cord produced by an antibody against myelin-associated neurite growth inhibitors." <i>Nature</i> , 1990. 343(6255):269-72. |
| | ARRR | Strenge et al., "Glycan specificity of myelin-associated glycoprotein and sialoadhesin deduced from interactions with synthetic oligosaccharides." Eur J Biochem, 1998. 258(2):677-85. |
| • | ASSS | Thallmair et al., "Neurite growth inhibitors restrict plasticity and functional recovery following corticospinal tract lesions." <i>Nat. Neurosci.</i> , 1998. 1(2):124-31. |
| | ATTT | Tang et al., "Soluble myelin-associated glycoprotein released from damaged white matter inhibits axonal regeneration." Mol Cell Neurosci., 2001. 18(3):259-69. |
| | AUUU | Tang et al., "Myelin-associated glycoprotein interacts with neurons via a sialic acid binding site at ARG118 and a distinct neurite inhibition site." <i>Journal of Cell Biology</i> 138:1355-1366. |
| | AVVV | Vogt et al., "Continuous renewal of the axonal pathway sensor apparatus by insertion of new sensor molecules into the growth cone membrane." Curr. Biol., 1996. 6:1153-8. |
| | AWWW | von Schack et al., "Complete ablation of the neurotrophin receptor p75ntr causes defects both in the nervous and the vascular system." <i>Nat Neurosci</i> , 2001. 4(10):977-8. |
| | AXXX | Vyas and Sellnaar, "Brain gangliosides: functional ligands for myelin stability and the control of nerve regeneration." <i>Biochem J</i> , 2001. 83:677-82. |
| | AYYY | Vyas et al., "From the cover: Gangliosides are functional nerve cell ligands for myelin-associated glycoprotein (mag), an inhibitor of nerve regeneration." PNAS, 2002. 99(12):8412-8417. |

| Examiner Sigi ature | Date Considered | | | |
|---|-----------------|--|--|--|
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| Examiner | Desig. | | | | |
| Initial | ID | Document | | | |
| | AZZZ | Wang et al., "Oligodendrocyte-myelin glycoprotein is a nogo receptor ligand that inhibits neurite outgrowth." <i>Nature</i> , 2002. 417(6892):941-4. | | | |
| | AAAAA | Wang et al., "Localization of nogo-a and nogo-66 receptor proteins at sites of axon-myelin and synaptic contact." <i>J. Neurosci.</i> , 2002. 22(13):5505-5515. | | | |
| | ABBBB | Wang et al., "P75 interacts with the nogo receptor as a co-receptor for nogo, mag and omgp." Nature, 2002. 420(6911):74-8. | | | |
| | ACCCC | Wong et al., "p75(ntr) and nogo receptor complex mediates repulsive signaling by myelin-associated glycoprotein." <i>Nat. Neurosci.</i> , 2002. 5(12):1302-8. | | | |
| | ADDDD | Yamashita et al., "The p75 receptor transduces the signal from myelin-associated glycoprotein to rho." <i>J Cell Biol</i> , 2002. 157(4):565-70. | | | |
| | AEEEE | Yang et al., "Gangliosides are neuronal ligands for myelin-associated glycoprotein." <i>PNAS</i> , 1996. 93(2):814-8. | | | |
| | AFFFF | Zimmermann and David, "The syndecans, tuners of transmembrane signaling." <i>FASEB J.</i> , 1999. 13(Suppl.):S91-S100. | | | |
| | AGGGG | Zito and Svoboda, "Activity-dependent synaptogenesis in the adult Mammalian cortex." <i>Neuron</i> , 2002. 35(6):1015-7. | | | |
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